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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/685,938

10/15/2003

Yee-Chia Yeo

TSM03-0926

7692

43859

7590

02/22/2007

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EXAMINER

FARAHANI, DANA

ART UNIT

PAPER NUMBER

2891

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/685,938	YEO ET AL.	
	Examiner	Art Unit	
	Dana Farahani	2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6-14 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-14 and 17-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 7, 9, 11-14, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Tran (US Patent Application Publication 2003/0073269).

Regarding claims 1, 2, 9, and 13, Tran discloses in figures 2-6, a semiconductor chip comprising:

a silicon substrate 12 comprising an active region ;

a first transistor structure, the middle gate, formed in/on the active region, the first structure is fully silicided by the silicide 15, and having source and drain 23;

and

at least one dummy silicide structure 26 formed on the substrate.

Regarding claims 7 and 18, silicide 38 is tungsten silicide (see paragraph 26).

Regarding claims 11 and 12, a dielectric layer (silicon nitride) 16 is overlying the first and the dummy silicide structures.

Re. Claim 14, see figures 6 and 8, wherein electrical contacts are made to the source/drain and gate of the transistors (paragraph 44).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Tran reference as applied to claim 2 above, and further in view of Yu (US Patent 6,686,248).

The Tran reference discloses the claimed invention, as discussed above, except for a gate dielectric comprising a high permittivity dielectric selected from the group consisting of aluminum oxide, hafnium oxide and such.

Yu discloses that these materials are used as high dielectric constant material of a gate dielectric. Therefore, it would have been obvious to one of ordinary in the art at the time of the invention to use these materials as the gate dielectric of the Tran reference to be able to use the transistor in an application, which requires a gate with high dielectric constant. See *In re Leshin*, 125 USPQ 416, for the proposition that it is within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tran.

Tran discloses the claimed invention, as discussed above, except for an SOI substrate. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the substrate as an SOI, since it is well known that SOI substrates are used to isolate chip components in a device, and prevent problems such as electromigration.

6. Claims 6 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Tran reference as applied to claim 1 above, and further in view of Paton et al., hereinafter Paton (US Patent 6,873,051).

The Tran reference discloses the claimed invention, as discussed above, except for the dummy silicide structure is nickel silicide.

Paton discloses nickel silicide in a gate silicide structure offers advantages such as low temperature formation (see column 1, lines 45-48). Therefore, it would have been obvious to one of ordinary in the art at the time of the invention to use Nickel silicide as the silicide layer of the Tran reference since the advantages of using Nickel as a gate silicide were known in the art. See *In re Leshin*, 125 USPQ 416, for the proposition that it is within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

7. Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Tran reference, as applied to claim 1 above, and further in view of Holmes et al., hereinafter Holmes (US Patent 6,797,641).

The Tran reference discloses the claimed invention, as discussed above, except for the dummy silicide structure comprises germanium.

Holmes discloses a gate structure comprises germanium silicide (see column 2, lines 14-22), further disclosing this gate structure improves reliability of the gate structure (see column 1). Therefore, it would have been obvious to one of ordinary in the art at the time of the invention to use germanium in the structure of the gates of the Tran reference to improve the reliability of the structure therein. See *In re Leshin*, 125 USPQ 416, for the proposition that it is within the general

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skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

Response to Arguments

8. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

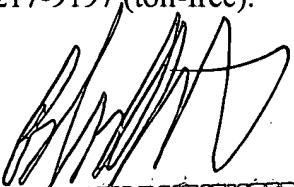
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Farahani whose telephone number is (571)272-1706. The examiner can normally be reached on M-F 9:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571)272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DF


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